REMARKS

Reconsideration and allowance are respectfully requested in light of the above amendments and the following remarks.

Claims 1-8 have been amended, claim 9 has been cancelled, and claim 10 has been newly added. Support for the features defined by claims 1-8 and 10 is provided in the original claims and the specification on page 11, line 2, through page 15, line 21, and page 18, line 20, through page 22, line 7. More specifically, support may be found in the specification on page 15, lines 5-10, and page 21, equation (7).

Claims 1-9 were rejected, under 35 USC §102(e), as being anticipated by Kobayakawa et al. (US 6,064,338). To the extent these rejections may be deemed applicable to the amended claims, Applicant respectfully traverses.

Claim 1 now recites:

> A radio receiving apparatus comprising:
> a first calculator that calculates reception weighting factors W_k for signals received respectively by a plurality of n antenna elements composing an adaptive array antenna;
> an arrival direction estimator that calculates steering vectors S_k to estimate directions of arrival of the received signals;
> a second calculator that calculates weighting factors W_{rk} for use in replica signal generation from the reception weighting factors W_k and the steering vectors S_k;
> a replica signal generator that generates replica signals, for the received signals using the weighting factors W_{rk}; and

an eliminator that eliminates components equivalent to the replica signals from the received signals, wherein

the second calculator calculates the weighting factors W_{rk} from the equation:

$$W_{rk} = \frac{S_k}{\sum_{k=1}^{n} S_k W_k} .$$

Kobayakawa fails to disclose the feature recited in claim 1 of calculating weighting factors W_{rk}, for use in replica signal generation, from reception weighting factors W_k and steering vectors S_k. Additionally, Kobayakawa fails to disclose that such weighting factors W_{rk} are generated according to the expression:

$$W_{rk} = \frac{S_k}{\sum_{k=1}^{n} S_k W_k} .$$

The above-noted features of the present invention provide the advantage of calculating weighting factors W_{rk}, for use in replica signal generation, without regard for the type of reception weighting factors W_k used. In other words, the claimed features make it possible to generate replica signals even when

the replica signal generation weighting factors W_{rk} are not complex conjugates of the reception weighting factors W_k. As a result, the invention defined by claim 1 may perform array reception using null steering to achieve excellent interference cancellation.

By contrast with the noted subject matter of claim 1, Kobayakawa discloses in Fig. 3: (1) an arithmetic unit 33 that calculates a vector and matrix for calculation of adaptive weights, (2) matched filters 31 that extract correlation signals using the I, Q data output from receiving circuits of antenna elements, (3) an adaptive weight calculating unit 4 that calculates adaptive weights, in a time sharing fashion, using the vector and matrix of each multipath, (4) beam-formers 5 that multiply output signals of the antenna elements and combine the products, and (5) a RAKE receiver 6. These features are not the same as those described above in connection with claim 1.

Moreover, claim 1 recites an arrival direction estimator, a second calculator, a replica signal generator, and an eliminator. Kobayakawa does not disclose the functionality associated with these features and does not disclose calculating weighting factors W_{rk} for use in replica signal generation from the equation:

$$W_{rk} = \frac{S_k}{\sum_{k=1}^{n} S_k W_k} .$$

Accordingly, Applicant submits that Kobayakawa does not anticipate the subject matter of claim 1.

Claim 10 similarly recites the features distinguishing apparatus claim 1 from Kobayakawa, though with respect to a method. For similar reasons that these features distinguish claim 1 from Kobayakawa, so too do they distinguish claim 10.

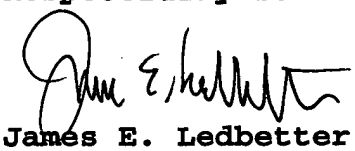
Therefore, allowance of claims 1 and 10 and all claims dependent therefrom is warranted.

In view of the above, it is submitted that this application is in condition for allowance and a notice to that effect is respectfully solicited.

If any issues remain which may best be resolved through a telephone communication, the Examiner is requested to telephone

the undersigned at the local Washington, D.C. telephone number listed below.

Respectfully submitted,



Date: February 11, 2005
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